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(54) HEATING TREATMENT**(11)** 56-48128 (A) **(43)** 1.5.1981 **(19)** JP**(21)** Appl. No. 54-124441 **(22)** 27.9.1979**(71)** PIONEER K.K. **(72)** YOSHIKI TANIGAWA(1)**(51)** Int. Cl. H01L21/205, C30B25 02, H01L21/223

PURPOSE: To effectively perform heat treatment by directly heating semiconductor substrates by heat radiation rays from infrared lamps wherein gas is induced between a quartz reactor tube and the infrared lamps to cool the reactor tube.

CONSTITUTION: Substrates 3 are stood upright in a quartz tube 1 for holding 6 and infrared lamps 7 are stationed at the outside of the tube 1 by reserving a pre-determined distance. Gas is induced between the reactor tube 1 and the lamps 7 to control an increase in the temperature of the reactor tube. Furthermore, curved surface reflectors 8 are provided behind the lamps 7 to effectively heat the substrates 3. In this composition, the degree of the freedom of the substance arrangement in the reactor tube 1 will be increased. And the substrates 3 will not be contaminated by the materials from the quartz reactor tube or a susceptor 6 as the substrates are selectively heated by heat radiation rays.

